

## Objective and subjective hardness of a test item used for evaluating food mixing ability

Type:

Article

Abstract:

The aim of this study was to compare objective and subjective hardness of selected common foods with a wax cube used as a test item in a mixing ability test. Objective hardness was determined for 11 foods (cream cheese, boiled fish paste, boiled beef, apple, raw carrot, peanut, soft/hard rice cracker, jelly, plain chocolate and chewing gum) and the wax cube. Peak force (N) to compress each item was obtained from force-time curves generated with the Tensipresser. Perceived hardness ratings of each item were made by 30 dentate subjects (mean age 26.9 years) using a visual analogue scale (100 mm). These subjective assessments were given twice with a 1 week interval. High intraclass correlation coefficients (ICCs) for test-retest reliability were seen for all foods ( $ICC > 0.68$ ;  $P < 0.001$ ). One-way ANOVA found a significant effect of food type on both the objective hardness score and the subjective hardness rating ( $P < 0.001$ ). The wax cube showed significant lower objective hardness score (32.6 N) and subjective hardness rating (47.7) than peanut (45.3 N, 63.5) and raw carrot (82.5 N, 78.4) [ $P < 0.05$ ; Ryan-Einot-Gabriel-Welsch (REGW)-F]. A significant semilogarithmic relationship was found between the logarithm of objective hardness scores and subjective hardness ratings across twelve test items ( $r = 0.90$ ;  $P < 0.001$ ). These results suggest the wax cube has a softer texture compared with test foods traditionally used for masticatory performance test, such as peanut and raw carrot. The hardness of the wax cube could be modified to simulate a range of test foods by changing mixture ratio of soft and hard paraffin wax.

Author	<ul style="list-style-type: none"><li>• Salleh, N. M.</li><li>• Fueki, K.</li><li>• Garrett, N. R.</li><li>• Ohyama, T.</li></ul>
Source	Journal of Oral Rehabilitation
ISSN	0305-182X
DOI	10.1111/j.1365-2842.2006.01645.x
Volume (Issue)	34(4)
Page	174-183
Year	2007

Keywords:

food texture,hardness,food mixing ability,masticatory function,removable partial dentures,masticatory function,natural foods,chewing,gum,muscle-activity implant,texture,wearers,electromyography,overdentures

Please Cite As:

SALLEH, N. M., FUEKI, K., GARRETT, N. R. & OHYAMA, T. 2007. **Objective and subjective hardness of a test item used for evaluating food mixing ability.** *Journal of Oral Rehabilitation*, 34, 174-183.

URL:

- <http://apps.webofknowledge.com> search via Accession No >> 000244115400003
- <http://www.ncbi.nlm.nih.gov/pubmed/17302945>